stream of diffracted x-ray ~~resultant~~ energy, the first graph relating to the first material characteristic and the second graph relating to the second material characteristic ~~each of the graphs relating to a separate one of the plurality of material characteristics~~;

displaying the first and second ~~the plurality of~~ graphs in a manner that facilitates substantially simultaneous visual comparisons between the information contained in each of the ~~plurality of~~ graphs; and

determining whether a relationship between the first and second material characteristics exists in the portion of the part under test that bears on a qualitative condition of the part under test based upon the substantially simultaneous visual comparison afforded by the display of the first and second graphs.

2. (Currently amended) The method of claim 1 wherein the step of displaying the first and second graphs includes displaying the first and second graphs on a single screen.

3. (Cancelled)

4. (Currently amended) The method of claim 1 wherein displaying the first and second graphs includes displaying each of the first and second ~~plurality of~~ graphs using a common resolution and includes aligning the first and second graphs along a common axis to facilitate easy and accurate evaluation and comparison of the first and second ~~plurality of~~ material characteristics.

5. (Currently amended) The method of claim 1 wherein displaying the first and second graphs includes relating selected information in the first and second graphs to color intensity so that variations in the color intensity are based upon variations in the selected information and displaying the selected information using the color intensities for highlighting variations and differences in the first and second material characteristics.

6. (Currently amended) The method of claim 1 wherein displaying the first and second ~~plurality of~~ graphs includes displaying a three-dimensional graph and including selecting a two-dimensional portion of the three-dimensional graph for facilitating the evaluation of the material characteristic as a function of a position along an x-axis or y-axis

of the graph.

7. (Currently amended) The method of claim 1 wherein displaying the first and second ~~plurality of~~ graphs includes displaying an isobar graph illustrating and highlighting differences and variations in the information included in the graph.

8. (Currently amended) The method of claim 1 wherein the displaying of the first and second graphs includes displaying a selected ones of the first and second graphs in real-time as the data ~~therefor~~ is obtained to allow for the efficient and timely evaluation of data by an operator as part testing occurs.

9. (Currently amended) The method of claim 1 wherein detecting a single stream of diffracted energy ~~obtaining the data~~ includes obtaining ~~the data~~ diffracted energy for each of the first and second graphs at different points in time and wherein determining the first and second material characteristics comprises applying calculus operations and evaluation procedures on the data obtained at different points in time.

10. (Original) The method of claim 1 including obtaining data indicting a surface profile of the part under test for aiding in accurate positioning of a sensor.

11. (Currently amended) The method of claim 1 including rotating or focusing on a selected ones of the ~~plurality of~~ first and second graphs simultaneously for aiding an operator in the evaluation of the material characteristics of the device under test.

12. (Currently amended) The method of claim 1 wherein the step of detecting a single stream of diffracted ~~resulting~~ energy includes detecting the diffraction or attenuation of the directed energy.

13. (Cancelled)

14. (Currently amended) The method of claim 1 including selecting a point on a selected one of the first and second ~~plurality of~~ graphs, generating a report of the material

characteristics for the point, and displaying the report along with the graphs to facilitate evaluation of the material characteristics at the point.

15. (Original) The method of claim 14 including selecting the characteristics from a group comprised of: stress, stress error, intensity ratio, average peak breadth, average full width at half maximum (FWHM), shear stress, stress tensor, error tensor, x- direction stress, y-direction stress, maximum shear, equivalent stress, hardness, grain size, dislocation density, plastic strain, percent plastic strain, percent cold work, phases, percent retained austenite, strain, strain error, shear strain, strain tensor, x-direction strain, y-direction strain, and maximum strain.

16. (Original) The method of claim 1 wherein directing energy includes scanning the selected portion of the part under test from different directions to obtain accurate measurements of the material characteristics.

40. (New) The method of claim 1 wherein detecting the single stream of diffracted energy comprises detecting a single stream of raw diffracted energy having a single frequency.

41. (New) The method of claim 1 further comprising identifying a potentially defective portion of the part under test based upon the visual comparison.

42. (New) The method of claim 41 wherein the first material characteristic is stress and the second material characteristic is shear stress and wherein identifying a potentially defective portion of the part under test comprises determining that the part is potentially defective because the stress and shear stress are uniformly high in the same portion of the part under test as determined by the substantially simultaneous visual comparison of the first and second graphs.

43. (New) The method of claim 41 wherein the first material characteristic is stress and the second material characteristic is error, and further comprising determining the intensity ratio and peak breadth from the single stream of diffracted energy, displaying the

intensity ratio in a third graph and the peak breadth in a fourth graph, and wherein identifying a potentially defective portion of the part under test comprises determining that the part is potentially defective because the stress is high in a portion of the part under test and the error, intensity ratio, and peak breadth vary substantially in the same portion of the part under test as determined by the substantially simultaneous visual comparison of the first, second, third, and fourth graphs.

44. (New) The method of claim 41 wherein the first material characteristic is stress and the second material characteristic is error, and further comprising determining the intensity ratio and peak breadth from the single stream of diffracted energy, displaying the intensity ratio in a third graph and the peak breadth in a fourth graph, and wherein identifying a potentially defective portion of the part under test comprises determining that the part is acceptable because the stress is high in a portion of the part under test and the error, intensity ratio, and peak breadth are low in the same portion of the part under test as determined by the substantially simultaneous visual comparison of the first, second, third, and fourth graphs.

45. (New) The method of claim 41 wherein the first material characteristic is stress as measured at a first sensor and the second material characteristic is stress as measured at a second sensor and wherein identifying a potentially defective portion of the part under test comprises determining that the part is potentially defective because the stress as measured at the first sensor is substantially different from the stress as measured at the second sensor as determined by the substantially simultaneous visual comparison of the first and second graphs.

46. (New) The method of claim 1 further comprising forming a third graph based upon a mathematical operation performed between the first and second graphs.

47. (New) The method of claim 46 wherein forming a third graph comprises forming a third graph from a mathematical operation, the mathematical operation being a subtraction operation.